Summary, Reflection, and Closing

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32nd IEEE International Requirements Engineering 2024 Conference – Exploring New Horizons: Expanding the Frontiers of Requirements Engineering

June 24th, 2024, Reykjavik, Iceland

Summary

Mining User Requirements from Application Store Reviews Using Frame Semantics

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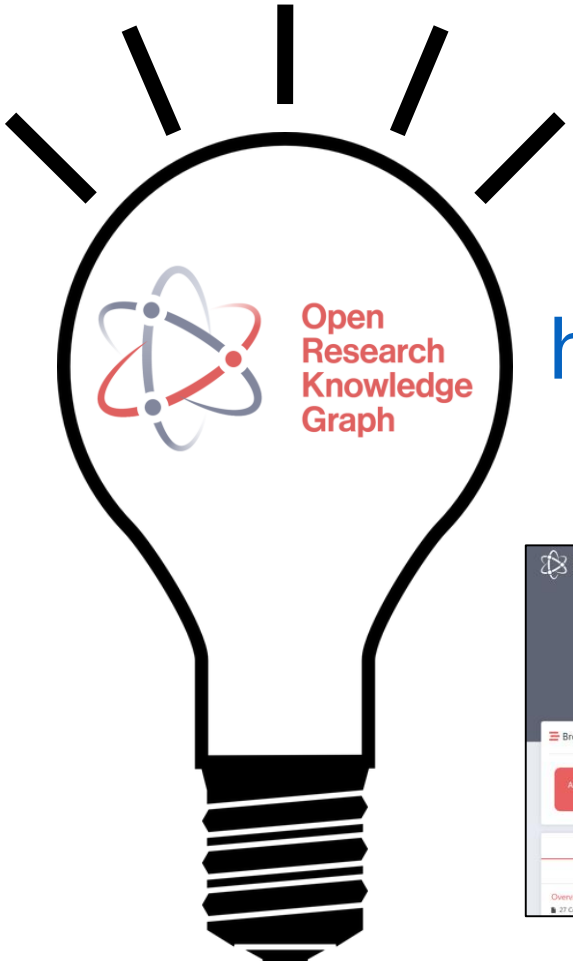
Abstract. *Context and motivation:* Research on mining user reviews in mobile application (app) stores has noticeably advanced in the past few years. The majority of the proposed techniques rely on classifying the textual description of user reviews into different categories of technically informative user requirements and uninformative feedback. *Question/Problem:* Relying on the textual attributes of reviews often produces high dimensional models. This increases the complexity of the classifier and can lead to overfitting problems. *Principal ideas/results:* We propose a novel semantic approach for app review classification. The proposed approach is based on the notion of semantic role labeling, or characterizing the lexical meaning of text in terms of semantic frames. Semantic frames help to generalize from text (individual words) to more abstract scenarios (contexts). This reduces the dimensionality of the data and enhances the predictive capabilities of the classifier. Three datasets of user reviews are used to conduct our experimental analysis. Results show that semantic frames can be used to generate lower dimensional and more accurate models in comparison to text classification methods. *Contribution:* A novel semantic approach for extracting user requirements from app reviews. The proposed approach enables a more efficient classification process and reduces the chance of overfitting.

Keywords: Requirements elicitation · Application stores · Classification

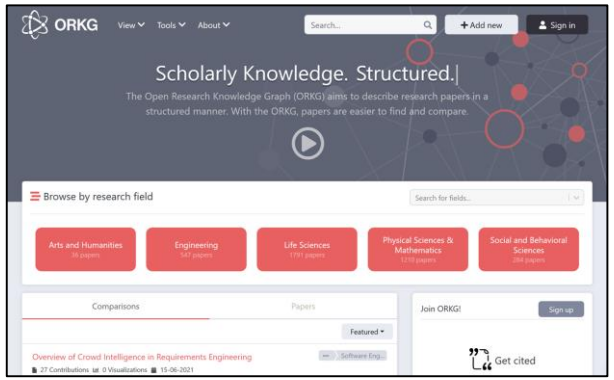
1 Introduction

Mobile application markets, or app stores (e.g., Google Play and Apple App Store), represent a unique model of service-oriented business. Such platforms have created an unprecedented opportunity for app developers to directly monitor the opinions of a large population of end-users of their software [25]. Through app stores feedback services, app users can directly share their experience in the form of textual reviews and meta-data (e.g., star ratings). Analyzing large datasets of app store reviews has revealed that they contain substantial amounts of up-to-date technical information. Such information can be leveraged by app developers to help them maintain and sustain their apps in a highly-competitive

© Springer International Publishing AG 2017
P. Grünbacher and A. Perini (Eds.): REFSQ 2017, LNCS 10153, pp. 273–287, 2017.
DOI: 10.1007/978-3-319-54045-0_20



https://orkg.org



Let's bring scholarly communication and open science in Requirements Engineering to the 21st century!

Recap of the Tutorial

Session	Time	Table of Content	Style	Speaker
Theoretical	09:00 - 09:25	1. Welcome (5 min)	Presentation	All organizers
		2. Introduction to open science in RE (10 min)	Presentation	Alessio Ferrari
		3. Introduction to the ORKG (10 min)	Presentation	Oliver Karras
Practical	09:25 - 10:15	4. Create a FAIR-annotated publication for the ORKG (50 min)	Exercise	Oliver Karras
		4.1 Set up an Overleaf project for an exemplary publication	Sub-exercise	All organizers
		4.2 Use the LaTex package SciKGTeX to annotate the publication	Sub-exercise	All organizers
		4.3 Generate PDF with embedded FAIR scientific information	Sub-exercise	All organizers
		4.4 Optional: Upload the FAIR-annotated publication to the ORKG	Sub-exercise	All organizers
Break	10:15 - 10:45	Coffee break		
Practical	10:45 - 11:45	5. Use the ORKG based on a RE use case (60 min)	Exercise	Oliver Karras
		5.1 Add an exemplary publication to the ORKG	Sub-exercise	All organizers
		5.2 Describe the scientific information of the publication in the ORKG	Sub-exercise	All organizers
		5.3 Create an ORKG comparison of the publications added by participants	Sub-exercise	All organizers
		5.4 Publish the created ORKG comparison as a citable digital artifact	Sub-exercise	All organizers
		5.5 Optional: Create visualizations for the created ORKG comparison	Sub-exercise	All organizers
		5.6 Optional: Retrieve the information with the SPARQL endpoint	Sub-exercise	All organizers
Feedback	11:45 - 12:15	6. Reflection of the tutorial with the participants (25 min)	Discussion	All organizers
		7. Farewell and closing (5 min)	Presentation	All organizers

Reflection and Feedback

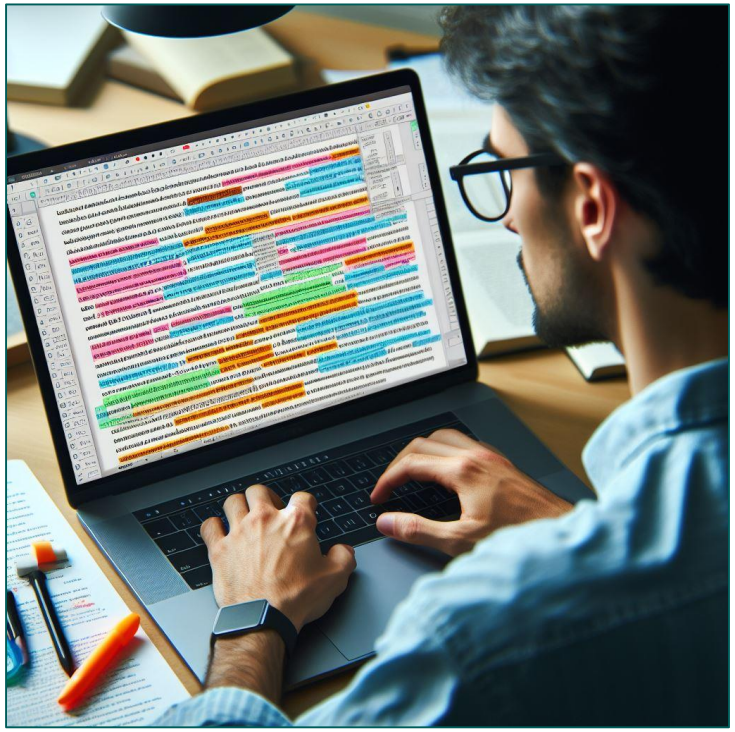
Your thoughts, please!

Teaser: REFSQ'25 Open Science Competition

Challenge 1:

Annotate your REFSQ'25 paper with SciKGTeX.

The accepted paper, best annotated with SciKGTeX, will be awarded the **Best ORKG Annotation Award** (prize:100€).



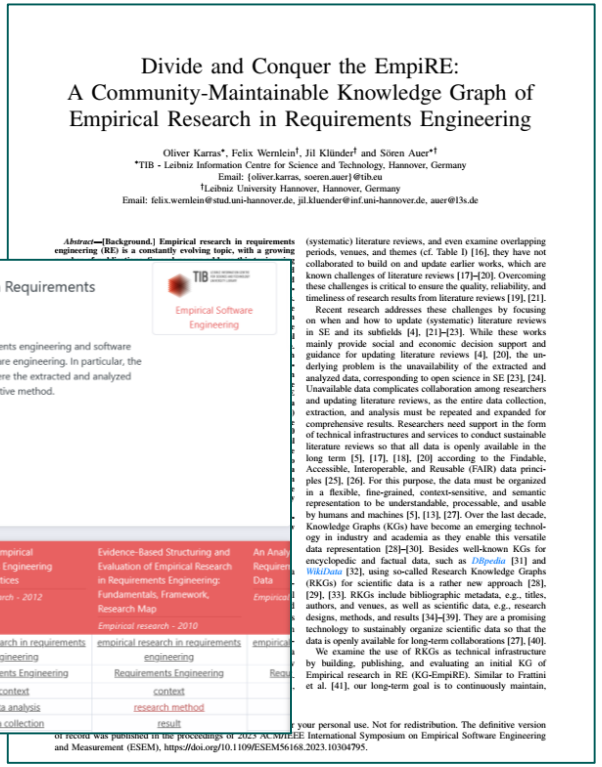
SciKGTeX

Challenge 2:

Enrich your RESFQ'25 paper with an ORKG comparison.

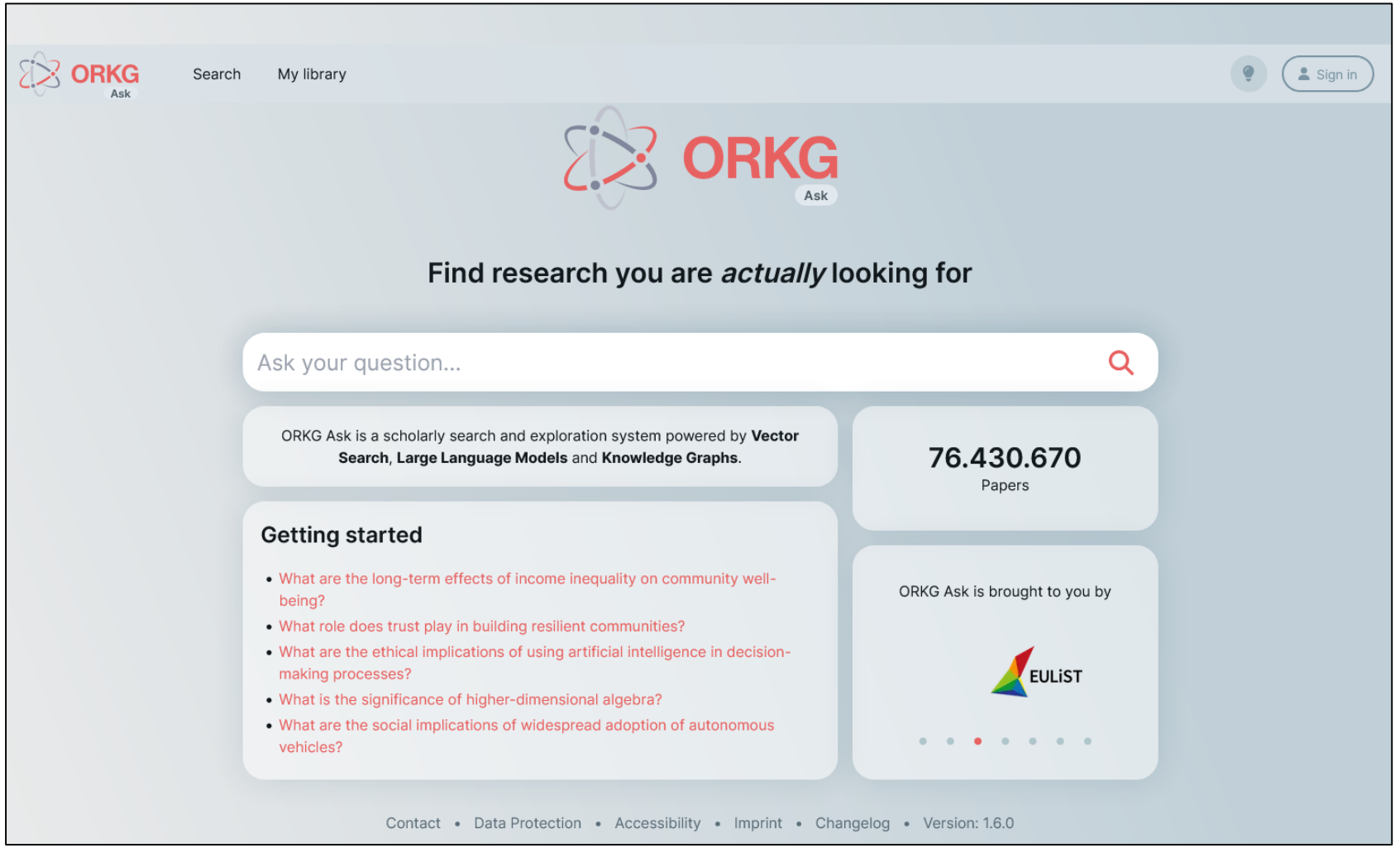
The accepted paper, enriched with the best ORKG comparison, will be awarded the **Best ORKG Comparison Award** (prize: 200€).

Open Research Knowledge Graph


Divide and Conquer the EmpiRE:
A Community-Maintainable Knowledge Graph of Empirical Research in Requirements Engineering

A Comparison of Scientific Publications on the State of Empirical Research in Requirements Engineering and Software Engineering

Looking to the Future: ORKG Ask



The ORKG Ask is a scientific **search and exploration system** that helps researchers **find** the **research articles** they are really looking for.

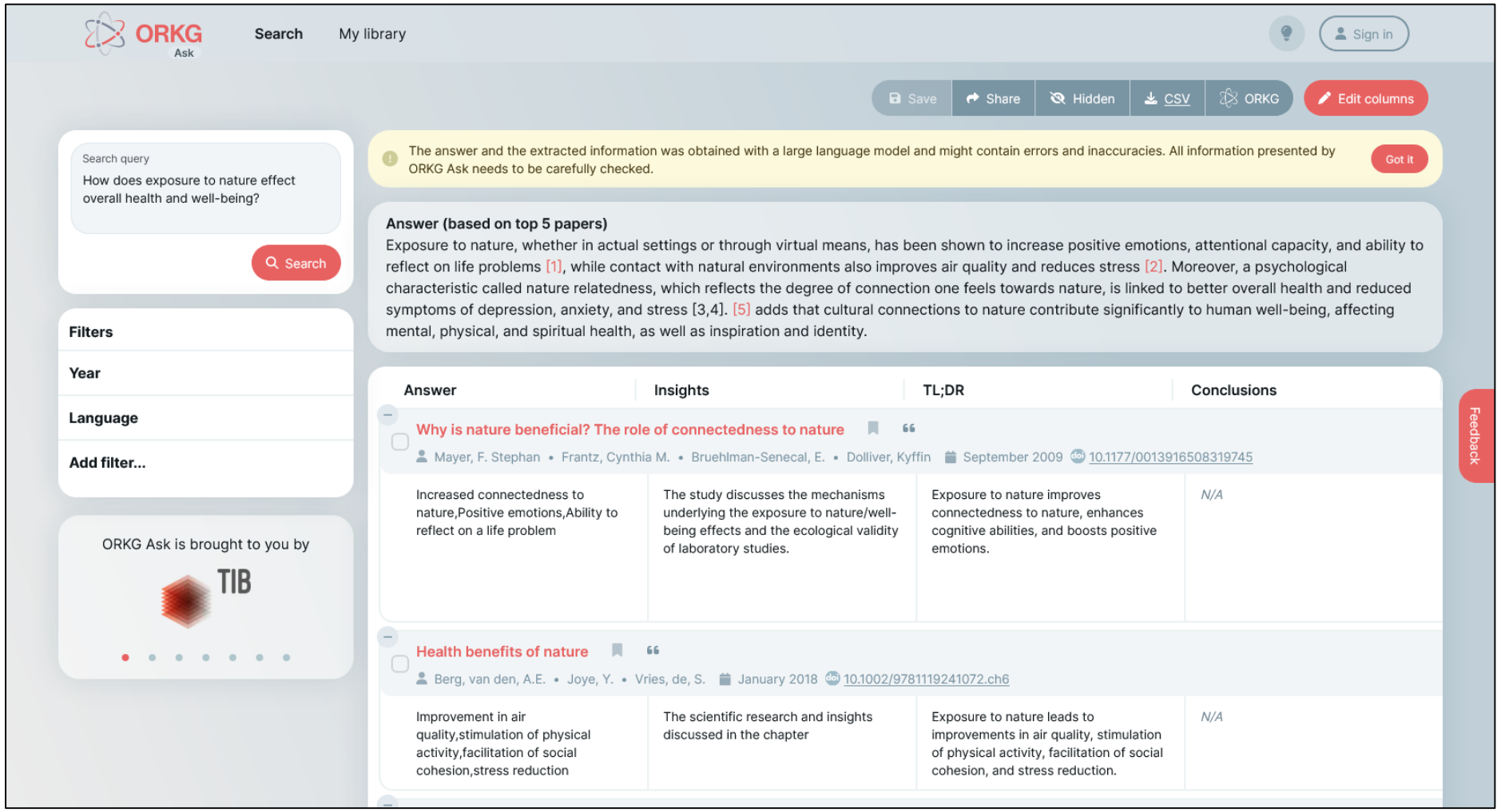
Ask a **question**.

Get an **answer** with **references**.

https://ask.orkg.org/

(Released: May16th, 2024)

Looking to the Future: ORKG Ask



1. Enter a natural language **question** in the **UI**
2. **Semantic search** finds the most relevant **papers**
3. **LLMs** extract the required information and create the **answer**
4. **KGs** are used to **support** content extraction, synthesis, and enhancement